

This listing of claims will replace all prior versions, and listings, of claims in the application.

LISTING OF CLAIMS

1. (currently amended) A method to test operating safety of a process control device
5 designed to close or open a pipe of a process system in the event of an incident
comprising a process valve and a pneumatic actuator for driving to move the process
valve, a position controller in a safety circuit, the position controller being connected
to a measurement device, the pneumatic actuator having a pneumatic input that is
10 directly being coupled to a pneumatic output of a solenoid valve that controls the
pneumatic actuator, the solenoid valve having an electrical input control unit that is
connected to the position controller for exchange of control signals, such that the
pneumatic actuator can be operated by way of the solenoid valve control unit to
move the process valve and the process valve can be moved from an initial condition
15 controlled by the solenoid valve control unit, and a test cycle for the process control
device comprising:
- generating a control signal for partial movement of the process valve aided by
the position controller;
- transferring the control signal from the position controller to the solenoid valve
20 via the electrical input of the solenoid valve control unit via a signal
connection;
- directly controlling the pneumatic actuator via its pneumatic input with the
solenoid valve, depending on the control signal provided at the
electrical input of the solenoid valve aided by the control unit to operate
25 the pneumatic actuator for the partial movement of the process valve
from the initial condition;

detecting, via said [[a]] measurement device, measurement signals that indicate the partial movement of the process valve from the initial condition; and
returning the process valve to the initial condition.

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2. (original) The method according to claim 1, further comprising:

detecting time-resolved path signals upon detection of the measurement signals with the aid of the measurement device.

10 3. (previously presented) The method according to claim 2, further comprising:
determining movement parameters from the detected time-resolved path signals.

4. (original) The method according to claim 1, further comprising:

15 executing a leakage measurement upon detection of the measurement signals, aided by the measurement device.

5. (original) The method according to claim 1, further comprising:

20 electronically logging of a course of the test cycle and electronically storing
the course in a storage device.

6. (original) The method according to claim 1, further comprising:

activating the test cycle for the process control device utilizing a remote control.

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7. (previously presented) The method according to claim 1, further comprising:

partially venting the pneumatic actuator to partially move the process valve as a reaction to the controlling by the control unit.

5 8. (cancelled).

9. (currently amended) A device to test the operating safety of a process control device designed to close or open a pipe of a process system in the event of an incident, comprising:

10 a process valve;

a ~~an~~ pneumatic actuator for driving to move the process valve, the pneumatic actuator having a pneumatic input;

a position controller in a safety circuit;

15 a solenoid valve comprising a pneumatic output that is directly coupled to the pneumatic input of the pneumatic actuator, and an electrical input
~~control unit~~ that is connected with the position controller for configured
~~to exchange of control signals and is coupled to the actuator,~~ such that
the pneumatic actuator can be operated via the solenoid valve control
~~unit to drive move~~ the process valve from an initial condition to a final
20 condition in the event of incident;

a measurement device connected to the position controller configured to
acquire measurement signals that indicate a movement of the process
valve from the initial condition;

25 the position controller comprising a control signal generator configured to
generate a control signal for a partial movement of the process valve in
the course of a test cycle for the process control device, and to

transmit the control signal via a signal connection from the position controller to the solenoid valve via its electrical input ~~control unit~~.

10. (original) The device according to claim 9, wherein the control unit and the
5 position controller are redundantly coupled to the actuator to operate the actuator.

11-12. (cancelled).

10 13. (previously presented) The device according to claim 9, wherein the measurement device comprises a motion sensor configured to detect the partial movement of the process valve.

14. (previously presented) The device according to claim 9, wherein the measurement device comprises a sound sensor configured to detect the partial
15 movement of the process valve.

15. (original) The device according to claim 9, further comprising:
a suppression device to suppress the generation of the control signal for the partial movement of the actuator in the course of the test cycle.

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16. (original) The device according to claim 9, further comprising:
a storage device configured to store electronic information concerning the test cycle.

25 17. (previously presented) The device according to claim 9, further comprising:

an evaluation device configured to automatically evaluate the measurement signals that indicate a movement of the process valve from the initial condition.

5 18. (previously presented) The method according to claim 1, wherein the detecting is performed as a direct detecting of the process valve and the measurement signals are directly taken from the process valve.

10 19. (previously presented) The method according to claim 1, wherein the measurement device is located between the process valve and the actuator.

20–21. (cancelled).

22. (new) The method according to claim 1, further comprising:

15 switching a switch device connected to the solenoid valve and thereby interrupting a control signal of a signal line provided to the solenoid valve with a test control signal to the solenoid valve; and
generating the test control signal by the position controller so that the
pneumatic output of the solenoid valve directs the pneumatic actuator
20 to partially move the control element.

23. (new) The method according to claim 22, further comprising:

detecting the partial movement of the control element with the measurement device to determine if the position controller, the solenoid valve, the
25 pneumatic actuator, and the control element have properly moved in response to the test control signal.

24. (new) The method according to claim 23, wherein all elements involved in operating the actuator with the control signal of the signal line to the solenoid valve are also involved in operating the actuator with the test control signal to the solenoid valve.

25. (new) The device according to claim 9, further comprising:

a switch device connected to the solenoid valve that interrupts a control signal of a signal line provided to the solenoid valve to provide a test control signal to the solenoid valve; and

a test control signal generator of the position controller that provides the test control signal to the solenoid valve via a signal connection so that the pneumatic output of the control unit directs the pneumatic actuator to partially move the control element.